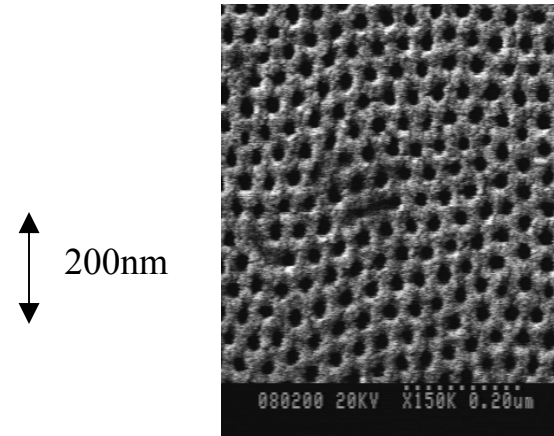


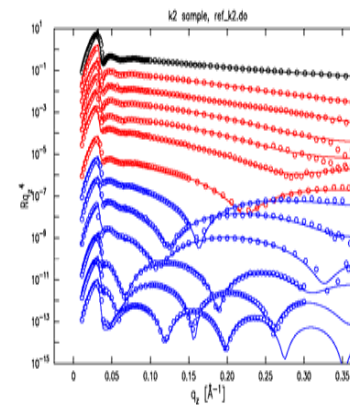
# Liquids on topological nano-templates.

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The manner in which liquids interact with nano-scale structures is crucial for both future fluid related nano technology and other applications such as secondary oil recovery from porous rocks. Until now there have not been any techniques for measuring this phenomena at the nm level. We have used synchrotron x-ray scattering to study the way in which liquids fill  $\sim 20\text{nm}$  diameter pits etched into the surface of a silicon wafer (see top right) The red traces illustrate x-ray reflectivity (left) and electron density profiles (right) during the initial filling of the pits when the liquid at the top surfaces remains thin. The blue traces show the behavior after the pits are filled and the liquid at top grows thicker.



X-ray reflectivity from  
dry and wet surfaces



Normal to surface  
E-density profile

